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prevented the carrying out of the original plan of measuring each star on three different nights. Nearly three-fifths of the number were passed with two observations made on one night only and by one observer only. One fears that the positions resulting from such measures, though "made in a manner as independent as possible," will not be sufficiently reliable to make it certain that differences between these and future measures are due to motion in the stars. For, as noted above, many of the stars are difficult, and the catalogue contains a number of instances of discordances in the measure of a star by the same observer on different nights, amounting in some cases to from 1″ to 3″ in a mean distance of 8″ or less, and occasionally to 10°, and even more, in position angle. We must also acknowledge that we cannot understand why some discordant measures are rejected (e. g. λ_1 42, λ_1 112), while others, equally discordant (e. g. λ_1 76, λ_1 170) are given full weight.

It is to be hoped that Dr. SEE may soon find time — even at the cost of delaying the completion of his survey of the southern heavens — to recur to the more promising of those stars in the present catalogue which were measured on one night only, and, by additional measures, place the present position of the components beyond doubt; for it is highly probable that a number of these stars will show rapid motion. R. G. AITKEN.

CHANGES IN THE AMERICAN EPHEMERIS.

In the preface to the American Ephemeris for 1900, just received, Professor HARKNESS states that certain changes of importance have been introduced in the volume. "First, the constant of precession for the epoch 1900.0 has been changed from 50″ 2638 to 50″.2482; the constant of nutation for the same epoch has been changed from 9″.2231 to 9″.21; the constant of aberration has been changed from 20″.4451 to 20″.47; and the constant of solar parallax from 8″.848 to 8″.80. Second, Professor NEWCOMB'S tables of the Sun, *Mercury* and *Venus*, and Dr. HILL'S final printed (as distinguished from his provisional manuscript) tables of *Saturn* have been substituted for the tables which were formerly used. Third, the 175 additional fixed stars, whose apparent Right Ascensions only were heretofore given, have been transferred to the regular list, which now contains their complete apparent places throughout the year."

The volume, it seems, was prepared entirely under Professor NEWCOMB'S supervision, before his retirement in 1897.

The changes in the astronomical constants above noted are made in conformity with the decisions of the *Paris Conference on Fundamental Stars*, held in May, 1896. They have also been introduced in the English *Nautical Almanac* for 1901, recently issued, and will be introduced in the Berliner *Astronomisches Jahrbuch* and the *Connaissance des Temps* for the same year.

Considerable opposition to these changes at this time has developed among astronomers; and those who are interested may find a vigorous discussion of the subject in recent numbers of the *Astronomical Journal.* R. G. A.

SOLAR OBSERVATIONS IN 1897.

In the *Astrophysical Journal* for March 1898, Professor P. TACCHINI gives a résumé of the solar observations made at the Royal Observatory of the Roman College during the second half of 1897. From his tables it is seen that the spots have continued to decrease, particularly in area, while the prominences have remained practically stationary in activity. The prominences have continued to show themselves in nearly all zones — with a maximum of frequency between the equator and — 20°. Two secondary maxima, however, occurred in the zones ± 40° to ± 60°. The spots were confined to regions within 20° of the equator. One eruption was observed on November 23d. A very bright jet suddenly formed on the west limb at latitude + 8°.2 and rose to the height of 168″ (about 15,000 miles), disappearing in twenty minutes. R. G. A.

NEW ELEMENTS OF COMET *b* 1898.

I have derived the following elements, using my observations of March 19th, 22d, and 26th.

$$T = 1898 \text{ March } 16^{d}.79123$$

$$\left.\begin{array}{rl} \omega = & 46^\circ\ 57'\ 11''.6 \\ \Omega = & 262\ \ 18\ \ 53\ .1 \\ i = & 72\ \ 21\ \ 14\ .4 \end{array}\right\} \begin{array}{c}\text{Ecliptic and} \\ \text{Mean Equinox of 1898.0.}\end{array}$$

$$\log q = 0.040024.$$

Residuals for the middle place, observed — computed

$$\begin{array}{ll} \Delta\lambda' \cos\beta' & +0''.3 \\ \Delta\beta' & -0\ .3 \end{array}$$

C. D. PERRINE.

MT. HAMILTON, April 5, 1898.